

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
31 March 2005 (31.03.2005)

PCT

(10) International Publication Number
WO 2005/028849 A1

(51) International Patent Classification⁷: F02M 31/20,
F28F 1/02, F28D 1/047

(74) Agents: JORIO, Paolo et al.; STUDIO TORTA S.r.l., Via
Viotti, 9, I-10121 TORINO (IT).

(21) International Application Number:
PCT/EP2004/052222

(22) International Filing Date:
17 September 2004 (17.09.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
TO2003 A 000724
19 September 2003 (19.09.2003) IT

(71) Applicant (for all designated States except US): DAYCO
FUEL MANAGEMENT S.p.A. [IT/IT]; Via Andrea Do-
ria, 15, I-10123 TORINO (IT).

(72) Inventors; and

(75) Inventors/Applicants (for US only): DEFILIPPI,
Roberto [IT/IT]; Via Isonzo, 123/8, I-10141 TORINO
(IT). VILLANO, Antonio [IT/IT]; Via Dei Colli, 6,
I-10020 VALDISSERO TORINESE (IT).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

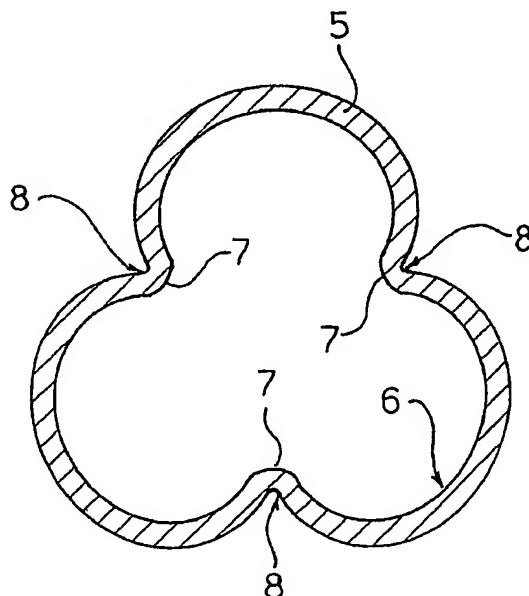
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: A COOLING DEVICE FOR A FUEL-RECIRCULATION CIRCUIT FROM THE INJECTION SYSTEM TO THE
TANK OF A MOTOR VEHICLE



(57) Abstract: A cooling device (1) for a fuel -recirculation
circuit from the injection system to the tank of a motor vehi-
cle comprises a pipe (2), which is designed to be traversed by
the fuel and comprises a side wall (5) which has at least one
internal projection (7) obtained by plastic deformation of the
side wall (5).